# THREE-DIMENSIONAL PAYLINES FOR GAMING MACHINES

## CROSS REFERENCE TO RELATED APPLICATION

**[0001]** This application claims priority to U.S. Provisional Patent Application No. 60/858,741, filed on Nov. 13, 2006, which is incorporated herein by reference in its entirety and for all purposes.

## TECHNICAL FIELD

**[0002]** The present invention relates generally to wager-based gaming machines, and more specifically to the use of three-dimensional paylines on such wager-based gaming machines.

## BACKGROUND

**[0003]** Casinos and other similar venues make up a growing multi-billion dollar gaming industry. As technology in the gaming industry progresses, traditional mechanically driven reel slot machines are steadily being replaced by electronic machines having a liquid crystal display ("LCD") and/or other similar display. Processor-based gaming machines are becoming the norm. One reason for their increased popularity is the nearly endless variety of games that can be implemented using processor-based technology. The processor-based gaming machines permit the operation of more complex games, advance player tracking, improve security, permit wireless communications, and add a host of digital features that are not be possible on mechanical-driven gaming machines. Many of these newer processor-based gaming machines provide various types of reel-based games that simulate or are at least similar to the reel-based games provided on older mechanically driven machines.

**[0004]** A "mechanical reel" type gaming machine can refer to a slot machine having traditional rotating reels with various associated latches and mechanical parts. A mechanical reel usually has a fixed number of reel symbols disposed about a reel strip that is attached about the edge circumference of a wheel, such that the outer edge of the "reel" is viewed. In a purely mechanical gaming machine, a motor, spring, or other mechanical system physically rotates or spins the reel until it stops at a particular rotational position or "reel stop," and a particular reel symbol rests in view of a player to indicate an outcome for that reel for that given reel game. In many older machines, the reels were spun by potential energy first stored in a spring-loaded mechanism wound and then actuated by the pull of a traditional pull-arm handle. Each reel was stopped at a random position by a mechanical device. The slot machine sensed a combined reel outcome, usually along a central payline, by sensing the physical position of each reel. A payout could then be made to the player if the combined outcome was a winning combination.

**[0005]** Later versions of such gaming machines include "electromechanical" reel type gaming machines. Such electromechanical reel type gaming machines could include the same or similar physical rotating reels, with the starting, spinning and stopping of each such electromechanical reel being controlled by a stepper motor. One or more microprocessors are used to control the various reel stepper motors. The use of microprocessors and stepper motors generally allows for a wide expansion of "virtual" reel stops for each rotating reel, such that larger payouts and jackpots can be realized over purely mechanical reel type gaming machines. Still further versions include fully electronic or processor based gaming machines that are adapted to present "virtual" or simulated reels on one or more visual or video displays. These electronic or processor-based gaming machines are becoming the norm due to a variety of factors, such as their increased versatility and general appeal to players.

**[0006]** In a typical electronic gaming machine, a game play is initiated through a player wager of money or credit, whereupon the gaming machine determines a game outcome, presents the game outcome to the player and then potentially dispenses an award of some type, including a monetary award, depending upon the game outcome. Electronic and microprocessor based gaming machines can include a variety of hardware and software components to provide a wide variety of game types and game playing capabilities, with such hardware and software components being generally well known in the art. A typical electronic gaming machine can include hardware devices and peripheral such as bill validators, coin acceptors, card readers, keypads, buttons, levers, touch screens, coin hoppers, player tracking units and the like. In addition, each gaming machine can have various audio and visual display components that can include, for example, speakers, display panels, belly and top glasses, exterior cabinet artwork, lights, and top box dioramas, as well as any number of video displays of various types to show game play and other assorted information.

**[0007]** Advances in technology have resulted in processor-based gaming machines that are increasingly better at simulating or emulating actual mechanical reels from a mechanical or electromechanical reel-based gaming machine. Various efforts to simulate or realistically emulate mechanical reels on a video screen of a processor-based gaming machine abound. Some of such efforts can be found at, for example, U.S. Pat. No. 6,887,157, entitled "Virtual Camera and 3-D Gaming Environments in a Gaming Machine," as well as at Japanese Patent Publication No. 2006346226A2, entitled "Game Device and Game Program." Another reference that involves rotating reel games having processors is U.S. Patent Publication No. 2005/0285337, entitled "Dynamic Generation of a Profile for Spinning Reel Gaming Machines," and there are numerous other known instances of machines and systems involving rotating reel games that are controlled at least in part by a microprocessor.

**[0008]** While existing designs and systems for providing realistic and entertaining reel-type games on processor-based gaming machines have been adequate in the past, improvements are usually welcomed and encouraged. In light of the foregoing, it is desirable to develop improved processor-based gaming machines that provide even further features for simulated reel type games played thereupon.

## SUMMARY

**[0009]** It is an advantage of the present invention to provide processor-based gaming machines that are adapted to present reel type games thereupon, such that the presented games include three-dimensional paylines. This can be accomplished at least in part through the use of simulated or "virtual" gaming reels that are presented on multiple display screens of a specialized multi-layer display at a respective gaming machine or gaming terminal.

**[0010]** In various embodiments of the present invention, a processor-based gaming machine adapted for accepting a wager, playing a game based on the wager and granting a